IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
ALEXANDRIA DIVISION

GEOSCOPE TECHNOLOGIES PTE. LTD.,	Case No. 1:22-CV-01331-MSN-JFA
Plaintiff,	
v.	DEMAND FOR JURY TRIAL
GOOGLE LLC,	
Defendant.	
GEOSCOPE TECHNOLOGIES PTE. LTD.,	Case No. 1:22-CV-01373-MSN-JFA
Plaintiff,	
v.	DEMAND FOR JURY TRIAL
APPLE INC.	
Defendant.	

**MEMORANDUM OF LAW IN SUPPORT OF
DEFENDANTS' JOINT MOTION FOR JUDGMENT ON THE PLEADINGS**

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TABLE OF ABBREVIATIONS

Abbreviation	Term
'104 patent	U.S. Patent No. 7,561,104
'358 patent	U.S. Patent No. 8,400,358
'494 patent	U.S. Patent No. 8,786,494
'753 patent	U.S. Patent No. 8,406,753
'264 patent	U.S. Patent No. 8,320,264
'784 patent	U.S. Patent No. 9,097,784
Apple	Defendant Apple Inc.
Google	Defendant Google LLC
Asserted Claims	'104 patent, claims 1, 2 '358 patent, claims 15, 18, 52 '494 patent, claims 1, 4, 25, 26, 35 '753 patent, claims 1, 32 '784 patent, claim 11 '264 patent, claims 13, 15, 20
Geoscope or Plaintiff	Plaintiff Geoscope Technologies Pte. Ltd.
'104 Family	The '104 patent, '358 patent, and '494 patent

TABLE OF EXHIBITS

Ex.	Description
A	U.S. Patent No. 5,327,144
B	U.S. Patent App. Pub. No. 2005/0243936

Pursuant to Rule 12(c) of the Federal Rules of Civil Procedure, Defendants in the above actions, Google LLC ("Google") and Apple Inc. ("Apple"), respectfully move for judgment on the pleadings as to the '104, '358, '494, '753, '264, and '784 patents on the basis that their asserted claims are not patent-eligible under 35 U.S.C. § 101.

I. INTRODUCTION

35 U.S.C. § 101 defines subject matter eligible for patent protection, and provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The Supreme Court "has long held that this provision contains an important implicit exception. Laws of nature, natural phenomena, and abstract ideas are not patentable." *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012). In *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208 (2014), the Court confirmed a two-step test for determining whether claims are patent-eligible under Section 101: (1) whether the claims are directed to a "patent-ineligible concept," such as an abstract idea, and (2) if so, whether the "elements of the claim[s]" contain an "inventive concept" that "ensure[s] that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* at 217–18 (citation and internal quotation marks omitted).

Here, the asserted claims of the six patents-in-suit are not patent-eligible under Section 101. At *Alice* Step One, all of the claims are directed to abstract ideas relating to the age-old concept of location determination—figuring out where something or someone is. The '104 Family and '753 patent claims are directed to determining location based on data. The '784 patent claims are directed to associating observed location data with known points on a map. The '264 patent claims are directed to using an existing communication channel to determine signal loss. The claims do nothing more than recite basic functions, such as collecting, modifying, and/or comparing data ('104 Family, '753 patent, and '784 patents), or calculating a value and using a channel ('264 patent). Although the claims arise in a technical context and use technical jargon,

they are no different than claims that courts regularly find to be abstract at *Alice* Step One. They

employ purely functional language without specifying *how* to perform those functions and require

no specific technological improvements to implement them.

At Step Two of the *Alice* test, the asserted claims recite no inventive concept that amounts

to significantly more than the abstract ideas to which they are directed. Instead, they recite only

well-known technology functioning in a conventional way, such as a "mobile" device or

"circuitry" ('104 Family, '753 patent), conventional wireless devices and databases ('784 patent),

and conventional networking equipment ('264 patent). Thus, judgment on the pleadings should

be granted on the basis that the asserted claims of the patents-in-suit are not patent-eligible.

II.   PROCEDURAL BACKGROUND

Geoscope filed the complaint against Apple on December 1, 2022, and Apple answered on

January 10, 2023. *See* No. 1:22-cv-01373-MSN-JFA ("Apple Action"), Dkts. 1, 29. Geoscope

filed the complaint against Google on November 22, 2022 and Google answered on March 1, 2023.

See No. 1:22-cv-01331-MSN-JFA ("Google Action"), Dkts. 1, 48. Claim construction briefing

was complete as of June 9, 2023. *See* Apple Action, Dkts. 39, 78; Google Action, Dkts. 83, 84.

The Court has scheduled a claim construction hearing for July 6, 2023. *See* Apple Action, Dkt.

81; Google Action, Dkt. 91.

III.   LEGAL STANDARD

Judgment on the Pleadings. Judgment on the pleadings should be granted where "'there

are no factual allegations that, taken as true, prevent resolving the [patent] eligibility question as a

matter of law.'" *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 765 (Fed. Cir. 2019)

(citation omitted). The Federal Circuit has recognized that patent eligibility "may be, and

frequently has been, resolved on a Rule 12(b)(6) or (c) motion," even "before claim construction

or significant discovery has commenced" and "based on intrinsic evidence from the specification

without need for 'extraneous fact finding outside the record.'" *See SAP Am., Inc. v. InvestPic,*

LLC, 898 F.3d 1161, 1166 (Fed. Cir. 2018); *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360 (Fed. Cir. 2017); *Secured Mail Sols. LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 912 (Fed. Cir. 2017).

The Federal Circuit has made clear that "conclusory statements regarding eligibility" in a complaint need not be accepted and "d[o] not preclude dismissal." *See, e.g.*, *Cisco Sys., Inc. v. Uniloc 2017 LLC*, 813 F. App'x 495, 498–99 (Fed. Cir. 2020). The Federal Circuit also has held that "a court need not 'accept as true allegations that contradict matters properly subject to judicial notice or by exhibit,' such as the claims and the patent specification." *Secured Mail Sols.*, 873 F.3d at 913.

Patent Eligibility. The legal question of patent eligibility involves a two-step "threshold inquiry." *In re Bilski*, 545 F.3d 943, 950 (2008), *aff'd sub nom. Bilski v. Kappos*, 561 U.S. 593 (2010). Step One asks whether the claims are directed to an ineligible "concept[]," such as an "abstract idea." *Alice*, 573 U.S. at 217.

The Step One "directed to" inquiry "ask[s] what the patent asserts to be the focus of the claimed advance over the prior art," and whether that focus is on patent-ineligible subject matter, such as an abstract idea. *Yu v. Apple Inc.*, 1 F.4th 1040, 1043 (Fed. Cir. 2021); *Affinity Labs of Tex., LLC v. DirecTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (holding that Step One "look[s] at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter"). The Federal Circuit has explained that this determination "must focus on the language of the [a]sserted [c]laims themselves, considered in light of the specification." *Yu*, 1 F.4th at 1043 (citation omitted). "The 'abstract ideas' category [of patent ineligible subject matter] embodies the longstanding rule that an idea of itself is not patentable," *id.* at 218, and is the basis under which courts have found claims ineligible where they

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are directed to, *e.g.*, algorithms, mathematical calculations, or fundamental concepts such as risk-hedging. *Alice*, 573 U.S. at 218–19.

If the claims are directed to patent ineligible subject matter, at Step Two the court "must examine the limitations of the claims to determine whether the claims contain an 'inventive concept' to 'transform' the claimed abstract idea into patent eligible subject matter." *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (quoting *Alice*, 573 U.S. at 221). Because the Federal Circuit has "repeatedly held" that "invocations of computers and networks that are not even arguably inventive are 'insufficient to pass the test of an inventive concept,'" part of the Step Two inquiry is to determine whether the claims "require[] anything other than conventional computer and network components operating according to their ordinary functions." *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016); *Two-Way Media Ltd. v. Comcast Cable Commc'ns*, 874 F.3d 1329, 1341 (Fed. Cir. 2017). As the Federal Circuit has made clear, however, even "adding novel or non-routine components is not necessarily enough to survive a § 101 challenge." *ChargePoint*, 920 F.3d at 773. "Instead, the inventive concept must be 'sufficient to ensure that the patent in practice amounts to **significantly more**' than a patent on the abstract idea." *Id*. (emphasis added). Claims that "merely require generic computer implementation, fail to transform [an] abstract idea into a patent-eligible invention." *Alice*, 573 U.S. at 221.

IV.   THE '104 FAMILY

A.   Background

The '104 Family patents share the same specification, and generally relate to determining the location of a "mobile station" (*e.g.*, a mobile device like a cell phone) using observed network

data and previously collected "calibration data." Dkt. 1-3[1] ('494 patent), Abstract.[2] The patents

concede that prior art mobile devices were already capable of using observed data at an unknown

location, along with previously collected calibration data—*e.g.,* "signal strength, round trip time,

time difference of arrival (TDOA), etc." at known locations—to determine the device's location.

Id. at 1:28–31. The patents state that when data is collected indoors, "the signal strengths of signals

received from the serving and/or neighboring base stations tend[ed] to be lower than the strength

of the signals received by a wireless device located outdoors." *Id*. at 1:40–43. The patents contend

that the lower signal strengths indoors could cause poor location estimates, and propose

"[m]odifying the calibration data obtained outdoors" as "a way to simulate indoor calibration data

characteristics." *Id*. at 1:48–49.

The asserted claims of the '104 Family, however, are ***not*** limited to modifying outdoor

calibration data to account for devices located indoors. Instead, the claims broadly recite

"modifying" observed network measurement data before using that modified data to determine the

location. The patents' specification makes clear that this "modifying" step can be achieved simply

by "subtracting or adding" to and from the data. *Id*. at 7:7–10. Yet, the claims themselves do not

even specify *how* to modify the data. Independent claim 1 of the '494 patent is representative:

> 1. A method for determining a location of a mobile station, comprising:
>
> providing a database of previously-gathered calibration data for a predetermined region in a wireless network;
>
> collecting observed network measurement data, the observed network measurement data collected by the mobile station and transmitted to the network or collected by the network;
>
> modifying said observed network measurement data; and

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[1] Citations to Dkt. 1 and its exhibits are to both the Apple Action and the Google Action, as Dkt. 1 and its exhibits are substantially identical in all respects relevant here.
[2] Citations are to the '494 patent, but the '358 and '104 patents share the same disclosures.

comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.

Claim 1 recites nothing more than "providing" a database of data, "collecting" different data, "modifying" that collected data, and "comparing" data to determine a location. And as with the "modifying step," the claim fails to specify or otherwise limit *how* to perform these basic functions.

The remaining independent claims are materially the same, and at most add abstract ideas or well-known and conventional components operating as intended to perform the same method of location determination. *Infra* Section IV.B.2; App'x A. Claim 25 of the '494 patent recites analyzing the data to compute the average of different signal characteristics and using—in no particular recited way—that average in the "modifying" step. Claim 15 of the '358 patent, for example, is a system claim that performs the same method with generic "circuitry." Claim 1 of the '104 patent adds determining the greater of two signal characteristics and then using—again, in no specified way—the larger one in the modifying step. As with claim 1 of the '494 patent, these claims require no technological improvements to perform these basic functions. Finally, the dependent claims, which are addressed more fully below, add trivial limitations related to the data collection (*e.g.*, location or data type) or the analysis performed. *Infra* Section IV.B.2; App'x A.

Thus, claim 1 of the '494 patent is representative of the asserted claims of the '104 Family. *See* Appendices A, B; *see, e.g.*, *Automated Tracking Sols., LLC v. Coca-Cola Co.*, 723 F. App'x 989, 991 (Fed. Cir. 2018) (affirming grant of Rule 12(c) motion on the basis of ineligibility of four patents and in view of two representative claims); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014) (affirming grant of motion to dismiss on the basis of ineligibility and representative claims where all asserted claims were "linked to the same abstract idea"); *Bridge & Post, Inc. v. Verizon Commc'ns, Inc.*, 319 F. Supp. 3d 818, 821 (E.D. Va. 2018), *aff'd*, 778 F. App'x 882 (Fed. Cir. 2019) (affirming dismissal on the

basis of ineligibility of three patents in view of one representative claim). Even if each claim is considered independently, each claim is similarly ineligible for the reasons set forth herein.

B.   The Asserted Claims of the '104 Family Are Ineligible Under Section 101

The asserted claims of the '104 Family are not patent-eligible under Section 101. At *Alice* Step One, the claims are directed to the fundamental abstract idea of determining location based on data, and the claims lack any inventive concept at *Alice* Step Two.

1.   *Alice* Step One: The Asserted Claims Are Directed to the Abstract Idea of Determining Location Based on Data

The Claims Are Focused on Determining Location Based on Data. The asserted claims of the '104 Family are directed to the abstract idea of determining location based on data. The concept of determining location based on data is not a technological improvement. It is not even a technological idea. Humans have carried out this basic function of determining location based on data throughout history, even before the invention of computers. For example, humans have long been able to determine where they are located based on visible landmarks and other information they can perceive in their environment (*e.g.*, the location of a mountain or building, stars, or sounds of running water). This concept also is not new in the context of mobile devices. Indeed, the '104 Family specification admits that mobile devices have long been able to determine their location based on data. Dkt. 1-3 ('494 patent), 1:28–31.

The language of the asserted claims itself confirms that at the heart of the claims is this abstract idea of determining location based on data:

Claim 1 of the '358 patent	Function
A method for determining a location of a mobile station, comprising:	Abstract idea of determining a mobile station's location based on data
providing a database of previously-gathered calibration data for a predetermined region in a wireless network;	Collecting data
collecting observed network measurement data;	Collecting data
modifying said observed network measurement data; and	Modifying data

comparing said modified network measurement data with said database of calibration data by positioning determining equipment to thereby determine the location of the mobile station.	Comparing data and outputting the result (as a location)

Controlling Authority Establishes That the Claims Are Abstract. As shown in the above table, the asserted claims of the '104 Family at most require collecting, modifying, and comparing data, and outputting the result of the comparison. The Federal Circuit repeatedly has held ineligible directly analogous claims to collecting, analyzing, and outputting data, regardless of the field of use. *E.g.*, *Elec. Power Grp.*, 830 F.3d at 1353–55 (holding that "collecting information, including when limited to particular content," "analyzing information by steps people go through in their minds, or by mathematical algorithms," and "presenting the results of abstract processes of collecting and analyzing information" are abstract ideas) (collecting cases holding ineligible claims to collecting and analyzing information).

Significantly, the Federal Circuit and courts in this District have held ineligible claims directed to collecting, analyzing, and outputting data for the same basic purpose as the claims asserted here: determining location. For example, in *Automated Tracking*, the Federal Circuit held that the claims at issue were directed to the abstract idea of locating, identifying, and tracking an object by "***collecting data*** from sensors, ***analyzing that data***, and ***determining results*** based on the analysis of data." 723 F. App'x at 993.[3] Similarly, a court in this District held ineligible claims directed to "the abstract idea of information collection and analysis" for the purpose of determining location. *CalAmp Wireless Networks Corp. v. ORBCOMM, Inc.*, 233 F. Supp. 3d 509, 512–13 (E.D. Va. 2017). Additionally, the district court in *GeoComply Solutions Inc. v. Xpoint Services LLC*, recently held ineligible claims directed to the abstract idea of "***determining the location of***

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[3] All emphasis in quotations is added except where noted.

a device based on geolocation information and programs present on the device," which the court referred to as "at its core, a 'method of organizing human activity'" that is insufficient for eligibility. 2023 WL 1927393, at *6 (D. Del. Feb. 10, 2023).[4] Here, just like the ineligible claims in *Automated Tracking*, *CalAmp*, *GeoComply*, and numerous other cases, the focus of the asserted claims of the '104 Family is nothing more than the abstract idea of collecting, modifying, and comparing data for the purpose of determining location.

       Nothing in the Claims Can Save Them at Step One. In addition, the '104 Family patent specification confirms that even the data and any components recited in the claims were well known in the art and are not directed to any specific technological improvements. Dkt. 1-3 ('494 patent), 1:20–31. The only step that Geoscope asserts in the complaint is not conventional is the recited step of "modifying" data. Dkt. 1 ¶ 51. Yet, over and over again, the Federal Circuit has made clear that merely modifying or manipulating data itself is an abstract concept and insufficient for patent eligibility. *E.g.*, *Univ. of Fla. Res. Found., Inc. v. Gen. Elec. Co.*, 916 F.3d 1363, 1368 (Fed. Cir. 2019) (holding ineligible claims directed to the "abstract idea of 'collecting, analyzing, *manipulating*, and displaying data.'"); *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (holding ineligible claims directed to the "abstract idea of collecting, displaying, and *manipulating* data"); *Elec. Power Grp.*, 830 F.3d at 1355 ("Merely requiring the selection and *manipulation* of information . . . by itself does not transform the otherwise-abstract processes of information collection and analysis"); *People.ai, Inc. v. Clari Inc.*, 2023 WL 2820794, at *6, *11 (Fed. Cir. Apr. 7, 2023) (holding ineligible claims "'directed to the abstract idea of data processing by restricting certain data from further analysis based on various

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[4] *See also, e.g.*, *IBM v. Zillow Grp.*, 50 F.4th 1371, 1377 (Fed. Cir. 2022) (ineligible claims directed to the abstract idea of updating a map and displaying items on a map); *Weisner v. Google LLC*, 51 F.4th 1073 (Fed. Cir. 2022) (ineligible claims directed to the idea of creating a travel log by collecting and storing data about the user's movements).

sets of generic rules.'""). Thus, modifying data itself cannot confer eligibility because it too is an abstract idea. *ChargePoint*, 920 F.3d at 771 ("[a]dding one abstract idea . . . to another abstract idea . . . does not render [a] claim non-abstract") (citation omitted).

Significantly, the asserted claims also do not specify precisely ***how*** to perform this "modifying" step, or any of the other basic steps of the claims. Instead, the claims merely employ the "purely functional terms" of "collecting," "modifying," "comparing," and "outputting"—without any other limitation and without requiring any specific, "concrete" technological improvement to implement those basic functions. *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016); *Bridge & Post*, 778 F. App'x at 890. The Federal Circuit has made clear that these types of claims, which are not directed to a "concrete" "improvement to computer functionality" and instead "describe[] the system and method[] in purely functional terms," are not patent-eligible. *TLI*, 823 F.3d at 612; *Bridge & Post*, 778 F. App'x at 890.

For example, representative claim 1 of the '494 patent recites no limitation about ***how*** the data is modified (*i.e.*, the only allegedly "new" step). And although two other independent claims recite using well-known mathematical concepts to further analyze the data—'494 patent cl. 25 (determining an average of signal characteristics) and '104 patent cl. 1 (determining which signal characteristic has a greater magnitude)—these abstract mathematical concepts (*e.g.*, averaging and comparing values) are themselves insufficient for eligibility and do not change the focus of the claims: collecting, comparing, and outputting data. *See In re Bd. of Trustees of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1250 (Fed. Cir. 2021) ("Courts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101."); *In re Rosenberg*, 813 F. App'x 594, 596 (Fed. Cir. 2020).

Thus, the asserted claims of the '104 Family are directed to no more than the fundamental abstract idea of determining location based on data.

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2.   *Alice* Step Two: The Asserted Claims Lack an Inventive Concept

The Asserted Independent Claims. The claims recite no inventive concept that amounts to "significantly more" than the abstract idea of determining location based upon data. The claims merely employ admittedly well-known and conventional data and components for their customary purpose. Each portion of the independent claims is addressed below.

"A method for determining a location of a mobile station, comprising" – The preamble is simply the abstract idea of determining location based on data itself, which cannot add an inventive concept. *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) ("It has been clear since *Alice* that a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept.").

"providing a database of previously-gathered calibration data for a predetermined region in a wireless network" and *"collecting observed network measurement data"* – These limitations simply recite collecting known data from the network or from a database. *See* Dkt. 1-3 ('494 patent), 1:28–36. This also is part of the abstract idea itself and thus cannot supply the requisite inventive concept. *BSG*, 899 F.3d at 1290.

"modifying said observed network measurement data" – As previously explained, modifying or manipulating data is itself part of the abstract idea and thus cannot supply the requisite inventive concept. *Id*.

"comparing said modified network measurement data with said database of calibration data by positioning determining equipment to thereby determine the location of the mobile station" – Analyzing data is also part of the abstract idea itself and thus cannot supply the requisite inventive concept. *Id*.

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Furthermore, just as each individual limitation fails to provide an inventive concept, the steps considered in combination do not either. The claimed collection of steps—which, at most, involve collecting, modifying, and comparing information—are indisputably well-known and, as discussed, have been consistently held to be abstract. *See, e.g.*, *Two-Way Media*, 874 F.3d at 1339–40; *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014). Thus, even the combination of steps recites nothing more than abstract ideas themselves and "add[s] nothing that is not already present when the steps are considered separately." *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1334 (Fed. Cir. 2015); *ChargePoint*, 920 F.3d at 771 ("[a]dding one abstract idea . . . to another abstract idea . . . does not render [a] claim non-abstract").

The remaining asserted independent claims recite no more than the limitations or steps that already have been addressed above, with two exceptions. *See* App'x A; *Alice*, 573 U.S. at 227 ("Because petitioner's system and media claims add nothing of substance to the underlying abstract idea, we hold that they too are patent ineligible under § 101."). Claim 1 of the '104 patent adds determining which of two signals has a greater magnitude and then modifying by *somehow* using the one with the greater magnitude. Similarly, claim 25 of the '494 patent adds receiving data from multiple transmitters, averaging the data, and then *somehow* using the average as part of the modification step. These additional steps merely involve using simple mathematical concepts (*e.g.*, averaging and comparing values) to analyze the collected data. The Federal Circuit has made clear that mathematical equations and calculations are themselves abstract and are insufficient to confer an inventive concept. *See Stanford*, 991 F.3d at 1251 ("Courts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101."); *Rosenberg*, 813 F. App'x at 596 (stating that "mathematical algorithms . . . are mental processes within the abstract-idea category"). The subsequent use of that calculated data likewise does not add an inventive concept.

In its complaint, Geoscope asserts without explanation or support that these well-known mathematical equations provide an inventive concept. Dkt. 1 ¶¶ 51, 54. The Federal Circuit has made clear, however, that such conclusory allegations are insufficient to provide an inventive concept, including at the Rule 12 stage. *See Dropbox, Inc. v. Synchronoss Techs., Inc.*, 815 F. App'x 529, 538 (Fed. Cir. 2020) ("Any allegation about inventiveness, wholly divorced from the claims or the specification does not defeat a motion to dismiss; only plausible and specific factual allegations that aspects of the claims are inventive are sufficient.") (citations omitted). In any event, as explained above, the average and greatest magnitude limitations merely represent well-known mathematical concepts that are insufficient for an inventive concept. *See Stanford*, 991 F.3d at 1251.

The Asserted Dependent Claims. The dependent claims likewise fail to recite an inventive concept, as they merely cover similarly abstract functions or involve well-known components functioning in their routine manner. *See* App'x B. Thus, whether considered individually or in combination, the additional limitations of the dependent claims fail to confer any inventive concept. *Versata*, 793 F.3d at 1334.

The "Non-Uniform Grid Point" ("NUG") claims[5] recite collecting certain data (*i.e.*, NUG data) from the database, but the claims do not recite using that data in any particular improved manner or handling that data in a specific way. Nor do they recite how to create that non-uniform grid point data. Indeed, the patents do not purport to have invented NUG data. Collecting and analyzing pre-existing data is an abstract idea itself, which cannot add inventive concept. *See Content Extraction*, 776 F.3d at 1347 (holding that collecting and analyzing pre-existing information is an abstract idea.). Furthermore, as the intrinsic record confirms, using grids for this

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[5] '104 patent, claim 2; '358 patent, claim 18; '494 patent, claims 4, 26.

purpose was well known and conventional. *See, e.g.*, Ex. A (U.S. Patent No. 5,327,144), 6:56–7:10; Ex. B (U.S. Patent Pub. No. 2005/0243936), ¶¶ 54–55.[6]

The **"outside the network" claims**[7] require that one of the data transmitters be outside the network. But those transmitters are nothing more than generic, conventional transmitters that are used in their conventional way and require no specific technological improvements or changes. They therefore do not add an inventive concept. *See Elec. Power Grp.*, 830 F.3d at 1355.

Accordingly, the asserted claims of the '104 Family are directed to the abstract idea of determining location based on data, and lack any inventive concept. The claims are thus ineligible.

V.   THE '753 PATENT

A.   Background

The asserted claims of the '753 patent also are ineligible under Section 101. Like the '104 Family, they too recite a method and system for "determining the location of a mobile device in a geographic region." The '753 patent specification explains that the claimed method entails first collecting "calibration data for a number of locations within a geographic region," and then "gather[ing] and analyz[ing]" the data to associate the calibration data with "particular points (e.g., 'grid points') within the geographic region." Dkt. 1-4 ('753 patent), 2:26–35. In other words, the method requires organizing calibration data into a directory of known locations. The specification explains that "[t]hen, the received signal level measurements reported by the mobile device to be geolocated may be compared with the data associated with the various grid points [*i.e.*, the directory] to estimate the location of the mobile device." *Id.* at 2:36–39.

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[6] The Federal Circuit has "established that 'prior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic evidence.'" *V-Formation, Inc. v. Benetton Grp. SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005) (quoting *Kumar v. Ovonic Battery Co.*, 351 F.3d 1364, 1368 (Fed. Cir. 2003)).

[7] '494 patent, claim 35; '358 patent, claim 52.

Stripped of jargon, the '753 patent claims a location-determination method in which measurements taken from a mobile device to be located are compared against a database containing measurement data from known locations—in other words, determining an unknown location by looking at information about known locations. Specifically, the asserted claims recite:

1. collecting measurement data from various locations ("*providing calibration data for each of one or more calibration points in a geographic region, said calibration data having one or more characterizing parameters*"),

2. organizing that measurement data into one or more directories of known locations ("*generating one or more sets of grid points for said calibration data*"),

3. comparing received measurement data from an unknown location to the one or more directories of known locations ("*receiving at least one network measurement report from a mobile device at an unknown location in said geographic region*" and "*evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters*"),

4. selecting the most suitable directory based on unspecified criteria ("*selecting a set of grid points as a function of predetermined criteria*"), and

5. comparing the received measurement data from the unknown location to the measurement data in the selected directory of known locations ("*determining the location of a mobile device in said geographic region as a function of said selected set of grid points*")

Dkt. 1-4 ('753 patent), Cl. 1.

The two asserted claims, claims 1 and 32, are independent claims. Claim 1 is a method claim. Claim 32, is the system claim version of claim 1 and recites the same method using well-known and conventional computing components: a "database" and a "processor." The asserted claims of the '753 patent are thus not specific to any particular type of location technology. Rather, the claims recite nothing more than the idea of compiling different types of data into a collection against which new data (for unknown locations) can be compared. The claims include no limitation as to how the compilations are made, or *how* new data is compared to the historical data.

B.   The Asserted Claims of the '753 Patent Are Ineligible Under Section 101

    1.   *Alice* Step One: The Asserted Claims are Directed to the Abstract Idea of Organizing Data and Determining Location Based on Data

Like the asserted claims of the '104 Family, the asserted claims of the '753 patent are directed to the abstract ideas of (1) organizing data and (2) determining location based on data—here, comparing new data against data that was previously collected from known locations and organized into a directory. Courts regularly have found each of these ideas to be abstract under Section 101. *See, e.g.*, *Content Extraction*, 776 F.3d at 1347 (holding ineligible claims "drawn to the abstract idea of 1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory"); *Sanderling Mgmt. Ltd. v. Snap Inc.*, 65 F.4th 698, 701–03 (Fed. Cir. 2023) (claims requiring "matching a GPS location indication with a geographic location" are "directed to [an] abstract idea"); *CG Tech. Dev., LLC v. FanDuel, Inc.*, 442 F. Supp.3d 840, 848 (D. Del. 2020) ("[d]etermining the location of a mobile gaming device" is an abstract idea); *CalAmp*, 233 F. Supp. 3d at 512 (claim involving "assessing the current location of [an] object" is "an abstract idea"); *Callwave Commc'ns, LLC v. AT&T Mobility*, 207 F. Supp. 3d 405, 412 (D. Del. 2016) ("Requesting and receiving location information is an abstract idea . . . .").

The Federal Circuit's recent decision in *Sanderling* is particularly instructive. The claims there required "access[ing] a database storing" various functions associated with "a geographic location," "receiving . . . a Global Positioning System (GPS) location indication from each of a plurality of mobile devices," "matching . . . each said GPS location indication with said geographic location" in the database, and then selecting a "digital image processing function" for use based on the geographic location. 65 F.4th at 701–02. The Federal Circuit held that these "claims [we]re directed to the abstract idea '"of providing information—in this case, a processing function—based on meeting a condition," *e.g.*, matching a GPS location indication with a geographic location.'"

Id. at 703. The '753 patent claims asserted here are even simpler: they require nothing more than organizing reference data into a database, *see Berkheimer v. HP Inc.*, 881 F.3d at 1366 (claims "directed to the abstract idea of using a generic computer to collect, organize, compare, and present data" are directed to a patent ineligible concept), and then determining a geographic location based on information stored in that database. Thus, the asserted claims of the '753 patent are directed to an abstract idea under *Sanderling*, *Berkheimer*, and *Content Extraction*.

This conclusion is confirmed by the fact that the claims "fail to recite a specific solution to make the alleged improvement . . . 'concrete.'" *Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349, 1358 (Fed. Cir. 2023). Instead, they "at most recite abstract data manipulation." *Id.* Rather than "focus on a specific means or method that improves the relevant technology," *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016), the claim limitations are drafted at such a high level of generality that they themselves are directed to abstract ideas:

Claim 1 of the '753 patent	Function
A method of determining the location of a mobile device in a geographic region comprising the steps of:	Abstract idea of determining a mobile device's location based on data
(a) providing calibration data for each of one or more calibration points in a geographic region, said calibration data having one or more characterizing parameters;	Collecting data
(b) generating one or more sets of grid points for said calibration data;	Organizing data
(c) receiving at least one network measurement report from a mobile device at an unknown location in said geographic region;	Collecting data
(d) evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters;	Analyzing data
(e) selecting a set of grid points as a function of a predetermined criteria; and	Analyzing data
(f) determining the location of a mobile device in said geographic region as a function of said selected set of grid points.	Analyzing data

As shown in the above table, the asserted claims require nothing more than collecting, organizing, comparing, and analyzing data. In other words, "[t]he focus of the claims . . . is on selecting certain information [and] analyzing it . . . . That is all abstract." *SAP Am.*, 898 F.3d at 1167; *see also, e.g.*, *Elec. Power Grp.*, 830 F.3d at 1353–55 ("collecting information, including when limited to particular content," "analyzing information by steps people go through in their minds, or by mathematical algorithms," and "presenting the results of abstract processes of collecting and analyzing information" are abstract ideas); *Intellectual Ventures I LLC v. Erie Indem. Co.*, 200 F. Supp. 3d 565, 574 (W.D. Pa. 2016), *aff'd*, 711 F. App'x 1012 (Fed. Cir. 2017) (holding asserted claims "directed to the abstract idea of identifying and categorizing files based on a set of *predetermined criteria*" patent ineligible); *Automated Tracking*, 723 F. App'x at 993 (claims disclosing "collecting data from sensors, analyzing that data, and determining results based on the analysis of data" are "directed to an abstract idea under *Alice* step one"). In particular, the claims do not specify how the calibration data is provided or what it contains; how the grid points are generated; what the "predetermined criteria" are; or what function(s) are used to evaluate the network measurement reports, select a set of grid points, or determine the location of the mobile device. Nowhere do the claims provide for any of these functions "the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it." *SAP Am.*, 898 F.3d at 1167. Thus, at Step One, the asserted claims of the '753 patent are directed to patent ineligible subject matter.

2.   *Alice* Step Two: The Asserted Claims Lack an Inventive Concept

None of the asserted claims of the '753 patent contain an "inventive concept" sufficient to render them patent-eligible at *Alice* Step Two. *Alice*, 573 U.S. at 221. Like the claims at issue in *Electric Power Grp.*, which similarly were directed to collecting and analyzing data, "[t]he claims in this case do not [] require a new source or type of information, or new techniques for analyzing

it." 830 F.3d at 1355; *see also RDPA, LLC v. Geopath, Inc.*, 543 F. Supp. 3d 4, 21 (S.D.N.Y. 2021) ("The mere use of existing GPS technology to implement a strategy for identifying individuals near a location and the analysis of such data are not sufficient to add an inventive concept to the abstract idea at the core of the Asserted Patents.").

Asserted claims 1 and 32 recite no inventive concept that amounts to "significantly more" than the abstract ideas of organizing data and determining location based upon data. The claims merely employ admittedly well-known and conventional data and components for their customary purpose. Each portion of these claims is addressed below.

"providing calibration data … said calibration data having one or more characterizing parameters" – The claims do not disclose *how* the calibration data is "provided," and, while the specification provides a laundry list of "exemplary" characterizing parameters, Dkt. 1-4 ('753 patent), 51:42–58), the examples are all measurement techniques that were known in the location determination field, such as signal strength, timing advance ("TA"), time difference of arrival ("TDOA"), cell ID, and wireless network state. *See, e.g.*, Dkt. 1-4 ('753 patent), 9:4–30, 10:9–16; Dkt. 1-1 ('104 patent), 1:21–24; Dkt. 1-2 ('358 patent), 1:27–30; Dkt. 1-3 ('494 patent), 1:28–31; *see Elec. Power Grp.*, 830 F.3d at 1355.

"generating one or more sets of grid points for said calibration data" – This step merely involves reorganizing the initially collected data. Because the claims do not place any limitation on *how* the set of grid points should be generated for the calibration data, it amounts to no more than basic data organization without requiring any particular technological improvement. *See Elec. Power Grp.*, 830 F.3d at 1355.

"receiving at least one network measurement report from a mobile device at an unknown location in said geographic region" – This step simply requires collecting data. As the '753 patent itself acknowledges, network measurement reports were known in the field. Dkt. 1-4 ('753 patent),

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9:53–55. The claims do not specify *how* the network measurement reports are received, much less require a specific technological improvement to do so. *See Elec. Power Grp.*, 830 F.3d at 1355.

"evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters" – This step merely involves the basic function of comparing data. While the limitation broadly recites using "a function" for this "evaluating" step, the claims require no limitation on what that function is. Indeed, a "function" is nothing more than a patent-ineligible mathematical algorithm. *See Stanford*, 991 F.3d at 1251–52.

"selecting a set of grid points as a function of a predetermined criteria" and *"determining the location of a mobile device in said geographic region as a function of said selected set of grid points"* – These steps merely involve analyzing data using undisclosed mathematical algorithms. The claims do not impose any limitations on what "functions" or "predetermined criteria" are used to carry out these steps. *See Elec. Power Grp.*, 830 F.3d at 1355.

Finally, claim 32 merely applies the abstract method of claim 1 to a "system" and names just two components: "a database" and "a processor," precisely the type of "entirely conventional, generic technology" courts have found insufficient to save similar claims at *Alice* Step Two. *Elec. Power*, 830 F.3d at 1356.

Thus, the asserted claims of the '753 patent are directed to the abstract ideas of (1) organizing data and (2) determining location based on data, and lack any inventive concept. The claims therefore are ineligible.

VI.   THE '784 PATENT

A.   Background

The '784 patent relates to collecting data for a "calibration database." Dkt. 1-5 ('784 patent), Abstract. The patent concedes that the concept of a "calibration database" is not new. *Id.* at 1:61–65. The patent explains that this database contains known types of collected data that

relate to a wireless device and that can be used to detect its location, *e.g.*, "signal strength, round

trip time, [and] time difference of arrival (TDOA)." *Id.* at 1:25–28.

The '784 patent states that this data may not always be accurate for various known reasons,

such as "poor satellite visibility." Dkt. 1-5 ('784 patent), 1:30–67. Because "it is important" for

the data to "be as precise as possible," the patent suggests that "a data modification and/or data

replacement algorithm may be implemented to enhance the accuracy of the collected data"; in

other words, replacing "bad" or inaccurate data with data believed to be more accurate. *Id.* at

1:30–67, 2:1–8, 4:60–67. The patent states, for example, that "[b]y keeping track of" a wireless

device's "directional movements and/or maneuvers, a probability calculation or estimate of the

most likely street location" of that device "may be calculated." *Id.* at 5:2–13.

Sole asserted claim 11, which depends from unasserted independent claim 1, is directed to

collecting data for a "calibration database." The language of the claim, however, is not limited to

correcting likely errors in data collected about a wireless device; no such concept is claimed. Nor

does the claim recite any particular calculations for achieving that goal. Instead, as shown below,

claim 11 focuses on merely (1) observing data with a wireless device at a geographic location, (2)

determining a "point" that is "in proximity" to the "most likely street" on which the wireless device

is located, and (3) associating that point with the observed data in a "calibration database."

> 1. A method for generating a calibration database, comprising;
>
> receiving at a wireless device an attribute of a signal transmitted by a wireless transmitter to a mobile station in a region;
>
> wirelessly transmitting from said wireless device said attribute to a controller unit;
>
> obtaining location data of a plurality of geographic locations situated within said region, wherein said location data is determined using said wireless device, and wherein said region contains plural streets and intersections of said plural streets;
>
> providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

> determining a status of said wireless device;
>
> determining from said status a most likely one of said plural streets upon which said wireless device is located;
>
> determining said most likely street as a first one of said plural geographic locations;
>
> determining a first point of said plural points that is in proximity to said first geographic location; and
>
> entering said first point in said calibration database and associating the location data for the first one of said plural geographic locations determined by said wireless device with the first point.
>
> 11. The method of claim 1 wherein said status includes attributes selected from the group consisting of: direction of travel; speed of travel, and change in direction of travel.

Id. at 9:16–43, 10:7–9. The first two limitations of independent claim 1 are a complete non-sequitur as the claimed "attribute" and "controller unit" have no required relationship to the other recited steps, and in any event, they are themselves merely abstract concepts. This limitation is nonsensical in the context of the claim and thus invalid. *See* Apple Action, Dkt. 72 at 23–25; Dkt. 78 at 23; Google Action, Dkt. 74 at 23–25; Dkt. 84 at 23. Regardless, the recited step of determining a street "as a first one of said plural geographic locations" is just another abstract, basic instruction like the rest of the steps recited in the claim. *Infra* Section VI.B.

Furthermore, claim 11 fails to specify *how* to perform these broad functions, much less require a technological improvement to achieve them. The claim, for instance, does not specify *how* to determine a wireless device's "most likely street" based on its "status." Nor does it recite any criteria for determining that a "point" is "in proximity" to that "most likely street"—the claim simply says "in proximity" and nothing more. The claim, in other words, does nothing more than recite a wish list.

Nor does claim 11 recite or require any specific technological improvements to carry out these functions. The patent's Background section concedes that the concept of a "calibration database" is not new. Dkt. 1-5 ('784 patent), 1:61–65. The patent also does not purport to have

invented the function of collecting this data, any specific new technology to perform that function, or even the kind of data that is collected. *Id.* at 1:17–2:8. The patent, for instance, concedes that prior art "collection device[s]," such as a GPS device, had long been used to collect the type of data at issue in claim 11. *Id.* at 1:34–40. The claim at most recites conventional components, such as a "wireless device," "database," and "circuitry," that operate as intended. *See, e.g.*, *id.* at 9:17–42, 10:10–34. Indeed, claim 11 merely recites that the detected "status" of the wireless device includes known "attributes selected from the group consisting of: direction of travel; speed of travel, and change in direction of travel." Thus, claim 11 amounts to no more than using conventional technology to collect well-known types of data, without requiring any particular technological improvements.

Finally, claim 11 requires "receiving" and "transmitting" an attribute of a signal. But—as recited in the claim—these steps have no apparent significance or relationship to the data collection steps used to "generate" the database. In any event, even these limitations amount to no more than receiving and sending data. *Id.* at 9:17–42, 10:10–34.

B.   Claim 11 of the '784 Patent Is Ineligible Under Section 101

Claim 11 of the '784 patent is ineligible under Section 101. At *Alice* Step One, the claim is directed to the abstract idea of associating observed location data with known points on a map, and the claim lacks any inventive concept at *Alice* Step Two.

1.   *Alice* Step One: Claim 11 of the '784 Patent Is Directed to the Abstract Idea of Associating Observed Location Data With Known Points on a Map

Claim 11 of the '784 patent is directed to the abstract idea of associating observed location data with known points on a map. *Supra* Section IV.B.1.

The Claim's Focus Is Associating Observed Location Data With Known Points on a Map. At the heart of claim 11 is nothing more than the abstract idea of associating an observed location (*e.g.*, a "most likely street" on which a wireless device is located) with a "point" on a map.

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This abstract association information is entered into an unspecified and equally abstract "calibration database," which the '784 patent specification concedes is itself just a conventional and well-known way to implement the abstract concept of organizing information. Dkt. 1-5 ('784 patent), 1:61–65. Although the patent suggests that the claim's intended purpose is to replace "bad" or inaccurate data with more accurate data, the claim itself recites no such limitation that specifically requires this particular goal. Instead, the language of claim 11 makes clear that its focus is much more broadly the mere performance of basic, abstract functions: (1) observing data with a wireless device at a geographic location; (2) determining a "point" that is "in proximity" to the "most likely street" on which the wireless device is located; and (3) entering into a database an association between that point and the observed data.

The '784 patent specification describes that determining the "most likely street" of a wireless device can involve simply using an undefined "probability calculation" that accounts for the device's "historical movements and maneuvers," and that the street database "may also provide ancillary information such as the direction of one-way streets." *Id.* at 3:46–48, 5:2–13. But claim 11 does not recite any probability calculation (which still would not be sufficient to render the claim non-abstract[8]). Humans have long collected data in databases, including for the purpose of determining location, and courts have held similar claims to be abstract. *See Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1327 (Fed. Cir. 2017) (holding that "organizing and accessing records" in a "database" represented "longstanding conduct that existed well before the advent of computers and the Internet"); *Concaten, Inc. v. Ameritrak Fleet Sols., LLC*, 131 F. Supp. 3d 1166, 1175 (D. Colo. 2015), *aff'd*, 669 F. App'x 571 (Fed. Cir. 2016) (recognizing that location determination and related analysis are "steps routinely performed by humans").

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[8] "Courts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101." *Stanford*, 991 F.3d at 1251.

Controlling Authority Establishes That Claim 11 Is Abstract.   Claim 11's focus on collecting, analyzing, and storing data is precisely like the claims the Federal Circuit regularly holds to be abstract, regardless of the field of use. *Elec. Power Grp.*, 830 F.3d at 1353–55 (holding that "collecting information, including when limited to particular content," "analyzing information by steps people go through in their minds, or by mathematical algorithms," and "presenting the results of abstract processes of collecting and analyzing information" are abstract ideas) (collecting cases holding ineligible claims to collecting and analyzing information); *Move, Inc. v. Real Estate All. Ltd.*, 721 F. App'x 950, 952–53 (Fed. Cir. 2018) (holding ineligible claims directed to the abstract idea of "collecting and organizing information about available real estate properties and displaying this information on a digital map that can be manipulated by the user"); *BSG*, 899 F.3d at 1286 (holding ineligible claims directed to the abstract idea of "considering historical usage information while inputting data" into a database); *Data Scape Ltd. v. Western Digital Corp.*, 816 F. App'x 461, 463 (Fed. Cir. 2020) (holding ineligible claims directed to the abstract idea of "selective data storage, transfer, and processing").

Significantly, the Federal Circuit and other courts have repeatedly held that claims involving collecting or analyzing data for the purpose of detecting location are patent ineligible. For instance, in *Weisner*, the Federal Circuit held ineligible claims that were directed to the abstract idea of "'collect[ing] information on a user's movements and location history [and] electronically record[ing] that data'" in a database. 51 F.4th at 1078, 1082. Similarly, in *Automated Tracking*, the ineligible claims recited a "system for locating, identifying and/or tracking of an object" that included receiving location information of that object and a "storage device" for "stor[ing] the detection information." 723 F. App'x at 991–92. The Federal Circuit held that the claims were

directed to the abstract idea of "collecting data from sensors, analyzing that data, and determining results based on the analysis of data." *Id.* at 993.[9]

Numerous other courts, including in this District, have reached the same conclusion. *See, e.g.*, *CalAmp*, 233 F. Supp. 3d at 512–13 (holding ineligible claims directed to the abstract idea of "information collection and analysis" for determining location); *Peschke Map Techs. LLC v. Rouse Props. Inc.*, 168 F. Supp. 3d 881, 887 (E.D. Va. 2016) (holding ineligible claims directed to using a map to "locate a particular building 'th[r]ough the use of location and layout information even if the address or even street is unknown'"); *Jewel Pathway LLC v. Polar Electro Inc.*, 556 F. Supp. 3d 335, 337–38, 343–44 (S.D.N.Y. 2021) (holding that claims to collecting location data using "location-enabled devices" were ineligible and directed to the abstract idea of "collecting, analyzing, manipulating, and displaying data"). For instance, the district court in *GeoComply* recently held ineligible claims directed to the abstract idea of "***determining the location of a device based on geolocation information*** and programs present on the device," which the court referred to as "at its core, a 'method of organizing human activity'" that is insufficient for eligibility. 2023 WL 1927393, at *6. Here, just like the ineligible claims in *Weisner*, *Automated Tracking*, *GeoComply*, and numerous other cases, claim 11 of the '784 patent is focused on collecting, analyzing, and storing data for determining location to implement the abstract concept of associating an observed location with known points on a map.

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[9] *See also Wireless Media Innovations, LLC v. Maher Terminals, LLC*, 100 F. Supp. 3d 405, 413 (D.N.J. 2015), *aff'd*, 636 F. App'x 1014 (Fed. Cir. 2016) (holding ineligible claims directed to the abstract idea of "monitoring locations, movement, and load status of shipping containers within a container-receiving yard, and storing, reporting and communicating this information in various forms through generic computer functions"); *Concaten*, 131 F. Supp. 3d at 1170, *aff'd*, 669 F. App'x 571 (Fed. Cir. 2016) (holding ineligible claims that involved receiving "collected information" about vehicles' "physical location[s]," and "provid[ing] a map" based on those locations); *RDPA*, 543 F. Supp. 3d at 8 (holding that claims to "applying the data collected by GPS and location tracking systems" for the purpose of "evaluating the effectiveness of" certain media were ineligible and directed to the abstract idea of "analysis and collection of data").

Nothing in Claim 11 Can Save It at Step One. Claim 11 recites no subject matter that could save it from ineligibility at Step One. The claim requires no specific technological improvements or "particular assertedly inventive technology for performing" the abstract idea of associating observed location data with known points on a map. *Elec. Power Grp.*, 830 F.3d at 1354. Instead, as discussed below (*infra* Section VI.B.2), the claim requires only admittedly well-known and conventional technology, such as a "wireless device," a "database" and "circuitry," that operates in its routine manner. Dkt. 1-5 ('784 patent), 3:44–48, 3:46–62, 8:27–41, 8:55–9:2. The claim's focus is thus not on "specific asserted improvement in computer capabilities" and instead "on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359, 1365 (Fed. Cir. 2020).

In addition, the claim employs purely functional claim language to implement the abstract idea. The Federal Circuit has held ineligible claims that similarly "fail[] to recite a practical way of applying an underlying idea . . . [and] instead [a]re drafted in such a result-oriented way that they amount[] to encompassing the 'principle in the abstract' no matter how implemented." *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1343 (Fed. Cir. 2018). This "essentially result-focused, functional character of claim language has been a frequent feature of claims held ineligible under § 101." *Elec. Power Grp.*, 830 F.3d at 1356. In *Two-Way Media*, for example, the Federal Circuit held ineligible claims that "require[d] the functional results of 'converting,' 'routing,' 'controlling,' 'monitoring,' and 'accumulating records,' but d[id] not sufficiently describe how to achieve these results in a non-abstract way." 874 F.3d at 1337. Here, claim 11 similarly recites only broad, functional claim language like "determining," "obtaining," and "entering," to implement the abstract idea of associating an observed location with known points on a map. The claim, for example, fails to specify precisely *how* to determine a device's "status" or its "most likely street" based on that "status." The claim also requires no particular limiting

criteria for determining that a "point" is "in proximity" to that "most likely street." The claim is "drafted in such a result-oriented way that [it] amount[s] to encompassing" this abstract idea "no matter how implemented." *Id.*; *Interval Licensing*, 896 F.3d at 1343.

Thus, claim 11 of the '784 patent is directed to no more than the abstract idea of associating observed location data with known points on a map.

2.   *Alice* Step Two: The Claim Lacks Any Inventive Concept

Whether the elements of claim 11 are considered individually or as an ordered combination, they fail to recite an inventive concept. *Alice*, 134 S. Ct. at 2355; *supra* Section IV.B.2. Instead, as discussed above (*supra* Section VI.B.1), the claim recites only well-known, conventional technology functioning in its routine manner to carry out the abstract idea of associating observed location data with known points on a map. Claim 11 recites only conventional components, such as a "wireless device," "mobile station," "database," and "controller unit," functioning in their routine manner. Dkt. 1-5 ('784 patent), 1:21–28, 5:51–58, 5:65–6:9, 7:1–4, 8:27–41, 8:55–60, 9:17–43, 10:10–33. Indeed, the patent concedes that even a "calibration database" was known at the time. *Id.* at 1:25–43. There is nothing improved or inventive about that database; it simply associates one piece of data with a location, which any conventional database does.

Furthermore, the patent does not purport to have invented any of the functions performed by these known components, such as determining a "status" of a wireless device, determining a "most likely street," and determining a point that is "in proximity" to that street. Indeed, as discussed above, these abstract functions are at the core of the abstract idea itself, and thus cannot supply an inventive concept whether considered individually or in an ordered combination. *ChargePoint*, 920 F.3d at 771 ("[a]dding one abstract idea . . . to another abstract idea" in this manner "does not render [a] claim non-abstract"); *BSG*, 899 F.3d at 1290 ("It has been clear since

Alice that a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept").

In addition, claim 11 merely recites *categories* of data to be collected or analyzed, such as the recited "signal attribute," "location database," and "status" of a wireless device. Beyond unasserted claim 1, from which claim 11 depends, claim 11 merely adds that the wireless device's determined "status includes attributes selected from the group consisting of: direction of travel; speed of travel, and change in direction of travel." These limitations are not sufficient to supply an inventive concept. The mere instruction to select a *category* of data to be collected or analyzed is itself abstract and cannot amount to "significantly more" than the abstract idea of associating observed data with known points on a map. *ChargePoint*, 920 F.3d at 771 ("[a]dding one abstract idea . . . to another abstract idea . . . does not render [a] claim non-abstract"). As the Federal Circuit has made clear, merely "enumerating types of information" or "selecting information, by content or source, for collection, analysis, [or] display does nothing significant to differentiate a process from ordinary mental processes, whose implicit exclusion from § 101 undergirds the information-based category of abstract ideas." *Elec. Power Grp.*, 830 F.3d at 1355. The court also held that "[a]s a matter of law, narrowing or reformulating an abstract idea does not add 'significantly more' to it." *BSG*, 899 F.3d at 1290. But that is at most what claim 11 of the '784 patent requires: selecting the *type* of data for the abstract process of associating observed data with known points on a map. Finally, the patent does not even purport to have invented these categories of data or databases. Dkt. 1-5 ('784 patent), 1:25–37 (discussing preexisting calibration databases). Instead, other than broadly stating the instruction to select these types of data for collection or analysis, claim 11 requires no more than preexisting technology functioning in its routine manner.

Thus, claim 11 of the '784 patent is directed to the abstract idea of associating observed location data with known points on a map, and lacks any inventive concept. The claim is ineligible.

VII.   THE '264 PATENT

A.   Background

The asserted claims of the '264 patent recite "determining a path loss value of a signal transmitted from a wireless device and received by a receiver." The specification states that "path loss" is a concept that represents the "measure of signal attenuation," or loss in a signal from where it is sent to where it is received. Dkt. 1-6 ('264 patent), 1:19. A "path loss value" is simple subtraction: it is the mathematical "difference between the transmitted signal power and the received signal power." *Id.* at 1:19–21. This value is obtained by subtracting the "signal level recorded at the receiver" from the "signal's transmitted power level." *Id.* at 1:21–29. However, instead of "[d]edicating a specific [frequency] channel for path loss measurements," which was "costly and inefficient," the purported invention of the '264 patent is the mere idea of using "an existing channel engaged in active communication"—without any details of how that is accomplished. *Id.* at 1:21–29, 1:55–61, 3:51–60. The asserted claims recite:

1. "*identifying a first frequency channel in an active communication between the wireless device and the receiver without disabling any other communication channel*" ("identifying" limitation);

2. "*geolocating the wireless device and the receiver*" ("geolocating" limitation);

3. "*receiving at the receiver the signal transmitted from said wireless device on said first frequency channel; receiving at said receiver an indication of transmission signal strength of said signal*" ("receiving" limitations);

4. "*measuring at said receiver the received signal strength of said signal*" ("measuring" limitation); and

5. "*determining the path loss value of said first frequency channel as a function of the indication of transmission signal strength and the received signal strength*" ("determining" limitation).

Dkt. 1-6 ('264 patent), Cl. 13.

Claim 13 of the '264 patent is representative of the other asserted claims. Dependent claim 15 further recites "determining the path loss values for a plurality of geographic areas to compile

a database." Dependent claim 20 adds that the "receiver" is a "plurality of receivers each disposed at a different location from each other" and from the wireless device.

The asserted claims do not specify *how* a frequency channel is identified or used or *how* a path loss value is determined. Rather, the claimed invention is nothing more than the idea of identifying an active frequency channel and determining signal loss using two values measured on that channel.

B. The Asserted Claims of the '264 Patent Are Ineligible Under Section 101

1. *Alice* Step One: The Asserted Claims Are Directed to the Abstract Idea of Using an Existing Communication Channel to Determine Signal Loss

The asserted claims of the '264 patent are directed to the abstract idea of using an existing communication channel to determine signal loss. That the idea is carried out in a technical context does not make it any less abstract. Courts regularly hold that claims similarly purporting to improve the efficiency of telecommunications systems are directed to abstract ideas. *See, e.g.*, *Cisco*, 813 F. App'x at 498 ("[T]he claims are directed to the abstract idea of ranking stations using their antenna performance and choosing the best station as the master."); *Netgear, Inc. v. Ruckus Wireless, Inc.*, 5 F. Supp. 3d 592, 624 (D. Del. 2013) (claims directed to a "strategy" for selecting an antenna in a wireless system found abstract). Using an existing communication channel instead of establishing a new one is nothing more than applying "an age-old practice" to a new context— the telecommunications equivalent of writing a postscript in a letter already being written instead of a new letter—and is thus abstract. *Erie*, 850 F.3d at 1330.

Nor does determination of a path loss value—the very goal of the asserted claims—save the claims at Step One. According to the '264 patent specification, the calculation is simple subtraction, which is "analyzing information" by the simplest of "mathematical algorithms" and therefore a "mental process[] within the abstract-idea category." *Elec. Power Grp.*, 830 F.3d at 1354; *see also Parker v. Flook*, 437 U.S. 584, 595 (1978); *Stanford*, 991 F.3d at 1250; *In re*

Gopalan, 809 F. App'x 942, 945–46 (Fed. Cir. 2020). Yet, the language of the asserted claims does not even require that particular mathematical operation to calculate the path loss value. Instead, the claims broadly state "determin[e]" the path loss value as an unspecified "function" of the received signal strength and transmission signal strength, and nothing more. The remaining claim steps—geolocating a wireless device and receiver, receiving various data, and measuring signal strength—also are abstract under settled law. *Sanderling*, 65 F.4th at 701–03 (claims requiring "matching a GPS location indication with a geographic location" are "directed to [an] abstract idea").

Furthermore, although the '264 patent describes an "alleged improvement"—avoiding the cost and inefficiency of dedicating a specific channel for determining signal loss—the claims "fail to recite a specific solution to make the alleged improvement . . . concrete." *Hawk Tech. Sys.*, 60 F.4th at 1358. That is, the claims recite "identifying a first frequency channel" that is being used for active communication "without disabling any other communication channel." But the claims do not specify ***how*** the frequency channel is identified. Nor do they provide any specific technological improvement required to use an active channel for the path loss value determination. Instead, as discussed above, the claims state the broad instruction of "determining" path loss using two values measured on that channel and nothing more. Thus, similar to other claims that the Federal Circuit has held ineligible, the asserted claims of the '264 patent are "written in 'result-based functional language' that 'does not sufficiently describe how to achieve these results in a non-abstract way.'" *Zillow*, 50 F.4th at 1378 (quoting *Two-Way Media*, 874 F.3d at 1337). The purported benefits merely "flow from performing an abstract idea in conjunction with a well-known" telecommunications system and do not make the claims less abstract. *BSG*, 899 F.3d at 1288. The claims are thus ineligible at Step One.

    2.   ***Alice* Step Two: The Asserted Claims Lack an Inventive Concept**

The asserted claims of the '264 patent likewise lack an "inventive concept" that amounts to "significantly more" than the ineligible abstract idea discussed above. *BSG*, 899 F.3d at 1290. The limitations are all either directed to the abstract idea itself, or merely "recite conventional, routine and well understood applications in the art." *Id.* Neither category is sufficient to save the claims from ineligibility at Step Two.

As noted above, independent claim 13 can be divided into four general steps: (1) identifying a frequency channel between a wireless device and a receiver that have been located; (2) receiving a signal on that channel containing "an indication of transmission signal strength"; (3) measuring the received signal strength; and (4) determining the path loss value as a function of the received signal strength and the transmission signal strength. Step 1, the identification of a frequency channel that is already in use, is the abstract idea to which the claims are directed. "As a matter of law, narrowing or reformulating an abstract idea does not add 'significantly more' to it." *BSG*, 899 F.3d at 1291.

The remaining limitations of claim 13 merely involve the well-known process of determining a path loss value in what the specification calls "a conventional cellular communication system." Dkt. 1-6 ('264 patent), 3:15–45, Fig. 1. The specification admits that it was routine and conventional to (1) geolocate a wireless device and receiver, *id.* at 5:16–18, 3:36–39; (2) send to a receiver an indication of transmission signal strength, *id.* at 1:44–45, 3:36–39; (3) measure the received signal strength at the receiver, *id.* at 1:45–46, 1:51–52, 3:36–39; and (4) determine a path loss value as an unspecified "function" of these inputs, *id.* at 1:19–31, 1:46–48, 1:52–54. Claim 13 therefore lacks any "inventive concept" sufficient to save it at Step Two.

The asserted dependent claims likewise fail to supply an inventive concept. Claim 15 recites "determining the path loss value for a plurality of geographic areas to compile a database." Nothing in the specification or the claim suggests that the "database" is anything other than routine

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or conventional. *Cf. BSG*, 899 F.3d at 1291 (noting that claims included "well-understood, routine and conventional database structures," which were not inventive concepts). Claim 20 simply requires that the "receiver" is a "plurality of receivers" at different locations, which the '264 patent itself concedes is not new in the context of a cellular network for use by multiple receivers. *See* Dkt. 1-6 ('264 patent) at 1:45–46, 3:29–33 (referring to multiple "receivers"); *id.* at 3:51–55 (referring to multiple "wireless devices within [a] geographic area").

Accordingly, the asserted claims of the '264 patent are directed to the abstract idea of using an existing communication channel to perform a path loss calculation, and lack any inventive concept. The claims therefore are not patent-eligible.

VIII.   JUDGMENT ON THE PLEADINGS IS APPROPRIATE

Dismissal based on patent ineligibility may be granted "where, as in *Mayo*, the specification admits" that the additional claim elements (beyond the abstract idea) are "well-understood, routine and conventional." *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354, 1357 (Fed. Cir. 2018) ("Relying on the specification alone may be appropriate where, as in *Mayo*, **the specification admits as much**."); *see also Berkheimer v. HP Inc.*, 881 F.3d 1360, (Fed. Cir. 2018) (holding claims ineligible that did "not recite any of the purportedly unconventional activities disclosed in the specification," but finding questions of fact as to dependent claims that were "directed to the arguably unconventional inventive concept"). Here, as explained above, the asserted claims of the patents-in-suit are directed to abstract ideas, and otherwise recite no more than well-known and conventional components used as intended. *Supra* Sections IV–VII. Thus, there are no factual disputes that need to be resolved to decide the eligibility question at this stage. *Dropbox*, 815 F. App'x at 538 (agreeing with the district court that the "complaint asserts only conclusory allegations [that are] insufficient to survive a motion to dismiss").

In an effort to avoid a finding of ineligibility, Geoscope devotes several paragraphs of the complaint attempting to concoct "specific improvements" for each of the patents-in-suit. As a matter of law, none of those allegations is capable of creating a factual dispute. Geoscope contends, for instance, that the examiner's allowance of the claims over the prior art references somehow impacts the eligibility of the asserted claims. Dkt. 1 ¶¶ 52, 61, 67, 75. It does not. As the Federal Circuit has explained, the eligibility inquiry is distinct from the invalidity inquiry. *See Two-Way Media*, 874 F.3d at 1340 ("Eligibility and novelty are separate inquiries."). In any event, five of the six patents-in-suit issued before the Supreme Court's decision in *Alice*, and the notice of allowance of the sixth patent, the '494 patent, issued before that decision. Thus, contrary to Geoscope's assertion, the examiner could not have adequately considered the eligibility of the asserted claims with the benefit of the Supreme Court's guidance in mind.

Geoscope's remaining allegations for each of the patents-in-suit are wholly conclusory and fail to preclude resolution of the issue at this stage:

'104 Family. As to the '104 Family, Geoscope offers in the complaint only conclusory *legal* assertions that are not backed by *factual* allegations. Dkt. 1 ¶ 48 (alleging that the patents cover specific improvements in the field of geolocation), 54 (alleging that the patents make clear that the claimed solution is superior to alternative approaches). The Federal Circuit has held that assertions like these are insufficient to overcome dismissal. *See Dropbox*, 815 F. App'x at 538; *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) ("Threadbare recitals of the elements of a cause of action, supported by mere conclusory statements, do not suffice.").

In addition, Geoscope contends that the patents recite an improvement for determining a location when the mobile station is indoors or otherwise obstructed when the data was collected outdoors. Dkt. 1 ¶¶ 49–51, 53. This, of course, is entirely beside the point because *the claims are not limited to indoor or obstructed locations to adjust data that was collected outdoors*. *See*

Cellspin Soft, Inc. v. Fitbit, Inc., 927 F.3d 1306, 1317–18 (Fed. Cir. 2019) (holding that "***what***

makes the claims inventive [must be] recited by the claims" and patent owner must "ma[k]e

specific, plausible factual allegations about why aspects of its ***claimed*** inventions were not

conventional"). The eligibility inquiry "must focus on the language of the Asserted Claims

themselves." *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016).

Thus, any features not recited in the claims "are irrelevant" to either step of the "*Mayo/Alice*

analysis." *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1293 (Fed. Cir. 2020).

    <u>**'753 Patent.**</u> Geoscope contends that "the claims of the '753 Patent cover specific

improvements in the field of geolocation that go beyond what was well-understood, routine, and

conventional to solve then-existing problems in the field." Dkt. 1 ¶ 58. This conclusory allegation

is insufficient to create a factual dispute. *Dropbox*, 815 F. App'x at 538.

    Geoscope argues that the inventive concept of the patent is the comparison of a received

network measurement report to a dataset consisting of multiple network signal inputs, such that

"geolocation need not rely solely on calculations with regard to cell towers." Dkt. 1 ¶ 60. But the

'753 patent acknowledges that these signals were already known in the art. *See* Dkt. 1-4 ('753

patent), 9:4–30. Thus, Geoscope's purported "specific improvement" amounts to nothing more

than creating a referential dataset using a variety of types of data inputs as opposed to a single type

of data input. Even taken as true for this motion, as explained above, data organization and

comparison are themselves abstract ideas, and thus as a matter of law cannot be the basis for an

"inventive concept" sufficient to save claims such as these that are directed toward patent ineligible

subject matter. *See Trading Techs. Int'l, Inc. v. IBG LLC*, 921 F.3d 1084, 1093 (Fed. Cir. 2019)

(holding that "inventive concept" cannot itself be an abstract idea).

    Geoscope also asserts that the '753 patent's improvement over "conventional methods for

geolocation using network signals" is the use of "calibration data to generate additional non-

uniform 'grid points' that could be selected from and used to determine the location of a mobile device." Dkt. 1 ¶ 60. But the asserted claims are not limited to—and do not even mention—"non-uniform grid points." Rather, they merely recite using "calibration data" to create "grid points," without any limitation as to what those grid points are or how they are generated. Where, as here, a patentee has "not identified any elements of any *claims* that amount to 'significantly more' than the abstract idea to which the claims are directed," dismissal is appropriate. *Realtime Data LLC v. Array Networks, Inc.*, 537 F. Supp. 3d 591, 605 (D. Del. 2021).

’784 Patent. As to the '784 patent, Geoscope likewise makes conclusory *legal* assertions that are not backed by *factual* allegations, and thus are insufficient to overcome dismissal. Dkt. 1 ¶¶ 64, 70; *Dropbox*, 815 F. App'x at 538. Geoscope contends that the claims "expressly recite th[e] inventive feature of using supplemental street information to generate a more accurate database of calibration data." Dkt. 1 ¶ 69. This, of course, is irrelevant to the eligibility inquiry as a matter of law because the claims do not recite using supplemental street information to generate a more accurate database of calibration data. *See Cellspin*, 927 F.3d at 1317–18. The eligibility inquiry "must focus on the language of the Asserted Claims themselves." *Synopsys*, 839 F.3d at 1149. Thus, any features not recited in asserted claim 11 "are irrelevant" to either step of the "*Mayo/Alice* analysis." *Am. Axle*, 967 F.3d at 1293. In any event, simply using a particular type of information and a "more accurate database" are themselves abstract ideas and cannot provide an inventive concept as a matter of law. *ChargePoint*, 920 F.3d at 771; *BSG*, 899 F.3d at 1290.

’264 Patent. Geoscope alleges in the complaint that "[t]he inventions of the '264 Patent improved on conventional methods for determining path loss values for geolocation purposes by, inter alia, enabling path loss values to be determined for geolocation purposes by using an active communication channel as opposed to a distinct channel dedicated specifically to making such

determinations." Dkt. 1 ¶ 74. It further alleges that "[t]hese improvements avoid the inefficiencies and costs associated with disrupting and revising existing frequency use plans for a geographic area by forgoing the use of dedicated channels for path loss measurements that may require disabling other frequency channels." *Id.* ¶ 77.

But these allegations simply restate the abstract idea discussed above—reusing an active frequency channel for performing path loss measurements—and the benefits that naturally flow from applying that idea using conventional technology. That is, even accepting Geoscope's allegation as true, the claims' "only 'inventive concept' is the application of an abstract idea using conventional and well-understood techniques." *BSG*, 899 F.3d at 1290–91. As a matter of law, that cannot "transform[] [the claim] into a patent-eligible application of an abstract idea," *id.*, and "judgment on the pleadings that the claims recite no 'inventive concept' is proper," *SAP Am.*, 898 F.3d at 1169.

IX.   CONCLUSION

For the foregoing reasons, Defendants respectfully ask the Court to hold that the Asserted Claims of the '104, '358, '494, '753, '264, and '784 patents are not patent-eligible under 35 U.S.C. § 101, and accordingly grant judgment on the pleadings in Defendants' favor and dismiss the respective Complaints with prejudice as to those patents.

Dated: June 27, 2023   Respectfully submitted,

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Appendix A: Comparison of Asserted Independent Claims of the '104 Family

'494 patent, claim 1	'494 patent, claim 25	'358 patent, claim 15	'104 patent, claim 1
A method for determining a location of a mobile station, comprising:	A method for determining a location of a mobile station, comprising:	A system for determining a location of a mobile station, comprising:	A method for determining a location of a mobile station, comprising:
providing a database of previously-gathered calibration data for a predetermined region in a wireless network;	providing a database of previously-gathered calibration data for a predetermined region in a wireless network;	a database of previously-gathered calibration data for a predetermined region in a wireless network;	providing a database of previously-gathered calibration data for a predetermined region in a wireless network, wherein said network includes a first transmitter and a second transmitter;
collecting observed network measurement data, *the observed network measurement data collected by the mobile station and transmitted to the network or collected by the network*;	collecting observed network measurement data from each of *a plurality of transmitters including a signal characteristic from each one of said plural transmitters, the observed network measurement data collected by the mobile station and transmitted to the network or collected by the network*;	circuitry for collecting observed network measurement data;	collecting observed network measurement data including *a first signal characteristic from said first transmitter and a second signal characteristic from said second transmitter*;
	determining an average value for select ones of said signal characteristics;		*determining which of said first and second signal characteristics has a greater magnitude;*
modifying said observed network measurement data; and	modifying said observed network measurement data using said average value; and	circuitry for modifying said observed network measurement data; and	modifying said observed network measurement data using the greater magnitude signal characteristic; and

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comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.	comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.	circuitry for comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.	comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.

Appendix B: Asserted Dependent Claims of the '104 Family

Claims	Shorthand	Representative Language
'104 patent, claim 2 '358 patent, claim 18 '494 patent, claims 4, 26	NUG	The method of claim 1 wherein said database comprises previously-gathered calibration data for one or more non-uniform grid points within said region.
'494 patent, claim 35 '358 patent, claim 52	Outside the network	The method of claim 25 wherein at least one of said plurality of transmitters is not a member of said wireless network.

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